



# ARIZONA CLIMATE CHANGE ADVISORY GROUP MEETING

#5

MAY 16, 2006



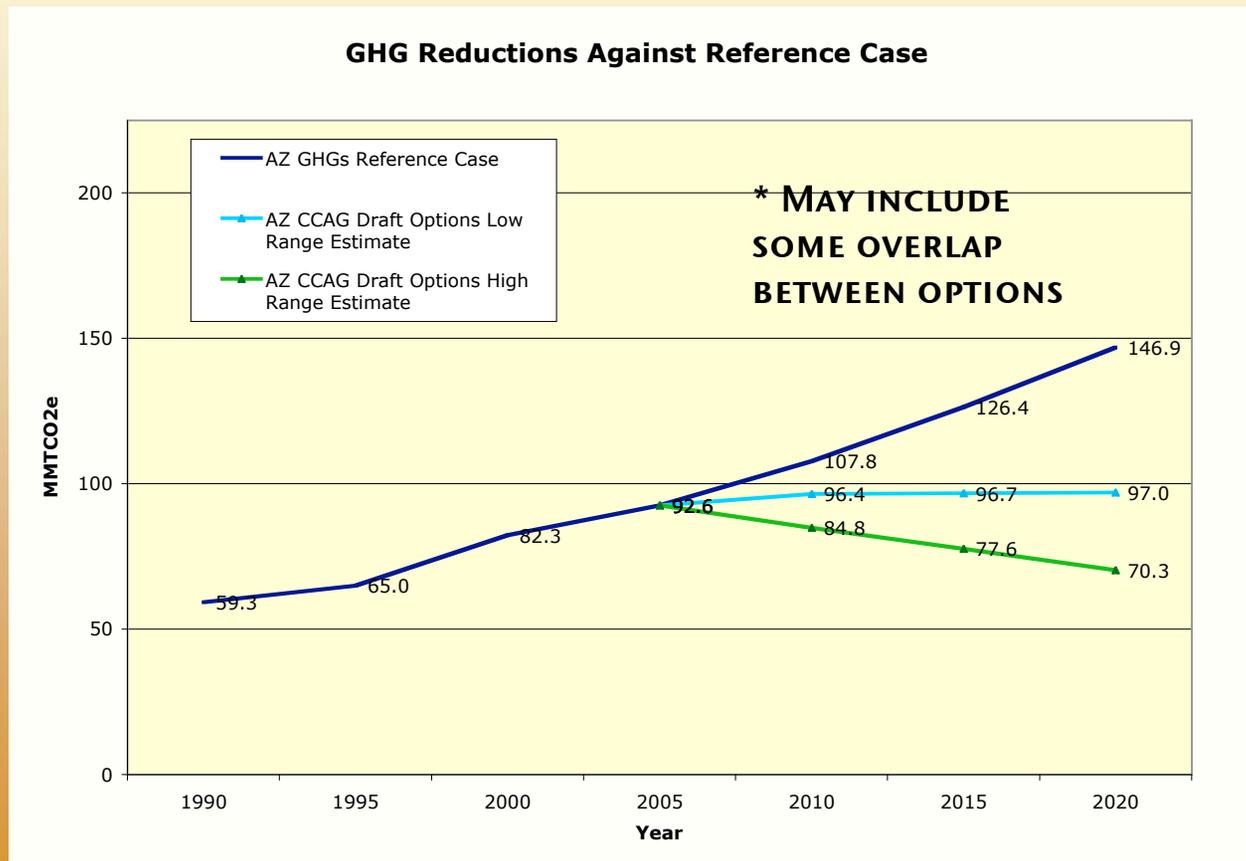
# TODAY'S AGENDA

1. **CALL TO ORDER**
2. **REVIEW OF MEETING AGENDA**
3. **APPROVAL OF FOURTH CLIMATE CHANGE ADVISORY GROUP (CCAG) MEETING SUMMARY**
4. **REVIEW OF CCAG PROGRESS AND NEXT STEPS**
5. **REVIEW OF ANALYTICAL RESULTS FOR POLICY PROPOSALS AND APPROVAL OF POLICY PROPOSALS FOR FINAL REPORT**
6. **DISCUSSION OF GHG REDUCTION GOALS AND TIMELINE PROPOSALS**
7. **REVIEW OF PROCESS AND SCHEDULE FOR COMPLETING DRAFT FINAL REPORT**
8. **CALL TO THE PUBLIC**
9. **ANNOUNCEMENTS, DISCUSSION OF AGENDA ITEMS AND TIME FOR NEXT MEETING**

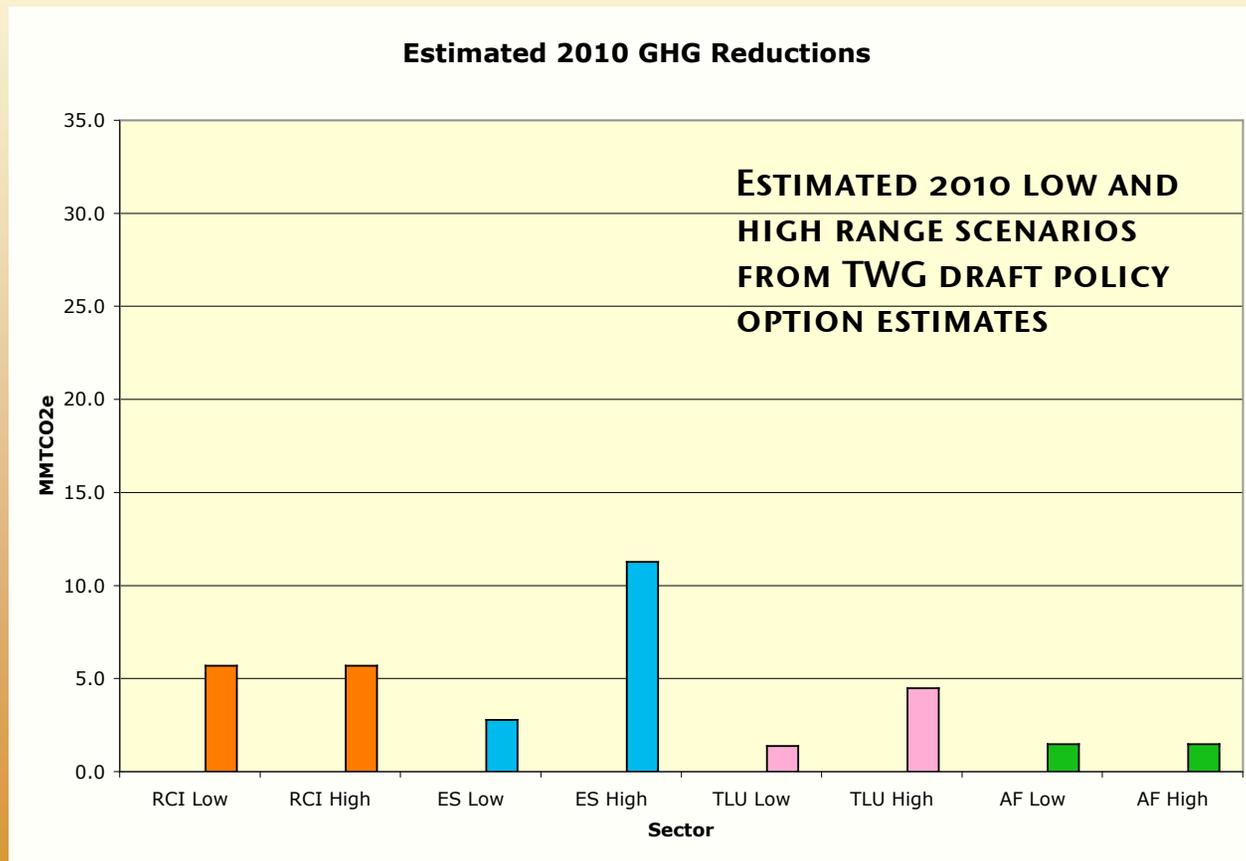
# REVIEW OF TEN STEP PLAN

1. DEVELOP INITIAL GHG INVENTORIES AND FORECASTS
2. IDENTIFY CONCEIVABLE GHG MITIGATION OPTIONS
3. IDENTIFY INITIAL PRIORITIES FOR EVALUATION
4. EVALUATION OF GHG SAVINGS, COSTS AND OTHER ISSUES FOR INDIVIDUAL OPTIONS
5. IDENTIFY BARRIERS, ALTERNATIVE POLICY DESIGN NEEDS FOR INDIVIDUAL OPTIONS
6. MODIFY, ADD OR SUBTRACT OPTIONS AS NEEDED
7. EVALUATE CUMULATIVE RESULTS OF OPTIONS
8. ITERATE TO CONSENSUS, WITH VOTES AS NEEDED
9. AGGREGATE OPTIONS INTO IMPLEMENTATION SCENARIOS
10. FINALIZE RECOMMENDATIONS AND REPORT LANGUAGE

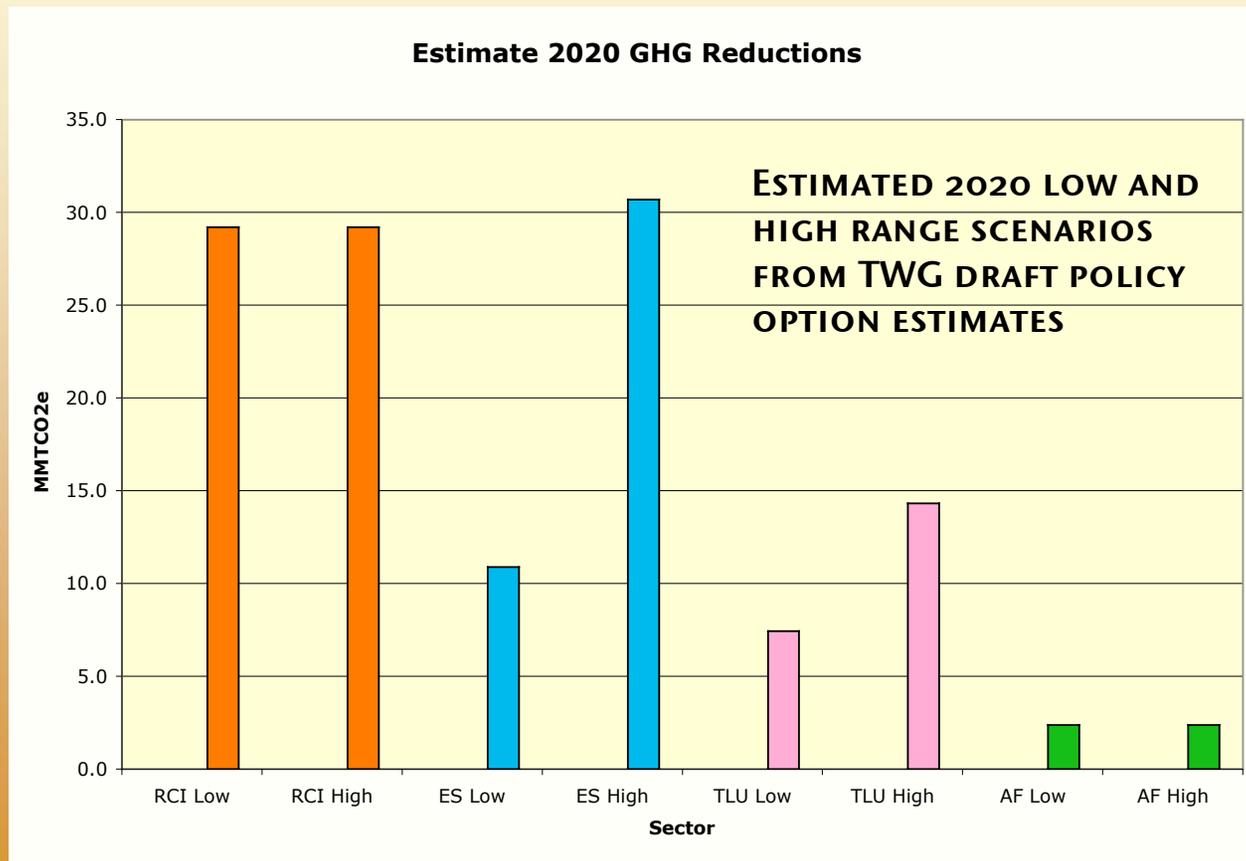
# DRAFT CUMULATIVE RESULTS LOW & HIGH RANGE SCENARIOS\*



# POTENTIAL PROGRESS 2010



# POTENTIAL PROGRESS 2020



# # DRAFT POLICY OPTIONS

SECTOR	# OPTIONS
ES	12
RCI	12
TLU	6
AF	15
CC	5
<b>TOTAL</b>	<b>50</b>

# DECISION CRITERIA

1. **GHG REDUCTION POTENTIAL (CO<sub>2</sub>E)**
2. **DIRECT COST PER TON GHG REMOVED**
3. **ANCILLARY ISSUES**
  - **CO-BENEFITS, COSTS, ETC.**
4. **FEASIBILITY ISSUES**
  - **TECHNICAL, ECONOMIC, MARKET, PROGRAMMATIC, POLITICAL**

# VOTING PROCEDURES

1. **REVIEW FULL LIST OF DRAFT POLICY OPTIONS**
  1. **IDENTIFY CONSENSUS OPTIONS (SUBJECT TO TECHNICAL COMPLETION)**
  2. **PARK REMAINING OPTIONS FOR LATER DISCUSSION**
2. **RETURN TO REMAINING DRAFT POLICY OPTIONS**
  1. **IDENTIFY SPECIFIC BARRIERS TO CONSENSUS FOR INDIVIDUAL OPTIONS**
  2. **IDENTIFY POTENTIAL ALTERNATIVE POLICY APPROACHES FOR INDIVIDUAL OPTIONS AS POSSIBLE**
  3. **CHECK LEVEL OF CONSENSUS FOR APPROVAL OF PROPOSED ALTERNATIVES, IF ANY**
  4. **CHECK LEVEL OF CONSENSUS FOR FURTHER DEVELOPMENT OF DRAFT OPTIONS FOR THE FINAL CCAG MEETING**

# VOTING LEVELS

1. CONSENSUS - NO OBJECTION TO APPROVAL OF MEASURE IN CONCEPT AND DESIGN
2. SUPER MAJORITY - NO MORE THAN FIVE OBJECTIONS
3. MAJORITY - LESS THAN HALF OF THE CCAG OBJECTS
4. MINORITY VIEWS - EXPRESS BARRIERS TO CONSENSUS

# BREAK



# DRAFT RCI OPTIONS - TABLE 5

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)
<b>RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL</b>			
RCI-1	Demand-Side Efficiency Goals, Funds, Incentives, and Programs	2010: 3.1 2020: 15.1	- \$36
RCI-2	State Leadership Programs	2010: 0.04 2020: 0.4	- \$4
RCI-3	Appliance Standards	2010: 0.2 2020: 1.0	- \$66
RCI-4	Building Standards/Codes for Smart Growth	2010: 0.3 2020: 2.2	- \$18
RCI-5	“Beyond Code” Building Design Incentives and Programs for Smart Growth	2010: 0.2 2020: 3.1	- \$17
RCI-6	Distributed Generation/Combined Heat and Power	2010: 0.4 2020: 2.7	- \$25
RCI-7	Distributed Generation/Renewable Energy Applications	2010: 0.1 2020: 2.1	\$31
RCI-8	Electricity Pricing Strategies	2010: 1.1 2020: 1.5	-\$63
RCI-9	Mitigating High Global Warming Potential (GWP) Gas Emissions (HFC, PFC)		
RCI-10	Demand-Side Fuel Switching	2010: 0.1 2020: 1.2	TBD
RCI-11	Industrial Sector GHG Emissions Trading or Commitments		
RCI-12	Solid Waste, Wastewater, and Water Use Management		

# DRAFT FORESTRY OPTIONS - TABLE 9

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost Effectiveness (\$/tCO <sub>2</sub> e)
<b>FORESTRY</b>			
F-1	Forestland Protection from Developed Uses	2010: 0.3 2020: 0.3	TBD
F-2	Reforestation/Restoration of Forestland	2010: 0.02 2020: 0.2	TBD
F-3a	Forest Ecosystem Management – Residential Lands	2010: 0.5 2020: 0.5	-\$56
F-3b	Forest Ecosystem Management – Other Lands	2010: 0.2 2020: 0.2	-\$56
F-4	Improved Commercialization of Biomass Gasification and Combined Cycle	TBD	TBD

# DRAFT AGRICULTURE OPTIONS - TABLE 9

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost Effectiveness (\$/tCO <sub>2</sub> e)
<b>AGRICULTURE</b>			
A-1a	Manure Management – Manure Digesters	2010: 0.1 2020: 0.4	\$6.83 (dairies only)
A-1b	Manure Management – Land Application	TBD	TBD
A-2	Biomass Feedstocks for Electricity or Steam/Direct Heat	2010: 0.04 2020: 0.1	-\$63
A-3	Ethanol Production (this option is included in total TLU GHG results and excluded from AF total GHG results)	2010: 0.49 2020: 0.64	TBD
A-4	Change Feedstocks (optimize for CH <sub>4</sub> and/or N <sub>2</sub> O reduction)	2010: 0.03 2020: 0.07	\$165
A-5	<i>Reduce Non-Farm Fertilizer Use</i>	<i>N/A</i>	<i>N/A</i>
A-6	Grazing Management	TBD	TBD
A-7	Convert Land to Grassland or Forest	TBD	TBD
A-8	Agricultural Land Protection from Developed Uses	2010: 0.2 2020: 0.5	TBD
A-9	Programs to Support Local Farming/Buy Local	2010: 0.003 2020: 0.01	TBD

# DRAFT TLU OPTIONS - TABLE 7

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Next Steps (Completed/Pending)
<b><u>PASSENGER VEHICLE GHG EMISSION RATES</u></b>				
<u>TLU-1</u>	California GHG Emission Standards	2010: 0-0.3 2020: 5.6	-\$94.58	
<b><u>LAND USE AND LOCATION EFFICIENCY</u></b>				
<u>TLU-2</u>	Smart Growth Bundle of Options	2010: 0.6-3.2 2020: 0.7-4.0	Net Savings	
<b><u>INCREASING LOW-GHG TRAVEL OPTIONS</u></b>				
<u>TLU-3</u>	Multimodal Transit Bundle of Options	TBD	TBD	
<b><u>FREIGHT</u></b>				
<u>TLU-4</u>	Reduction of Vehicle Idling	2010: 0.3-0.5 2020: 0.5-0.7	-\$61 to -\$107	
	<i>(new TLU-4 combines former TLU-4 and -5)</i>			
<b><u>FUELS</u></b>				
<u>TLU-5</u>	Standards for Alternative Fuels (Ethanol Production Option A3 is included under total TLU GHG results and excluded from total AF GHG results)	2010: 0.49-0.49 2020: 0.64-4.03	N/A	
<u>TLU-6</u>	Gasoline Tax	N/A	N/A	

# DRAFT ES OPTIONS - TABLE 3

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost Effectiveness (\$/tCO <sub>2</sub> e)
<b>RENEWABLE AND LOW-EMITTING ENERGY</b>			
ES-1	Environmental Portfolio Standard / Renewable Energy Standard and Tariff	1a(0) 2010: 0.80 2020: 4.4	\$13
		1a(1) 2010: 1.39 2020: 8.0	\$8
		1a(2) 2010: 1.42 2020: 7.7	\$12
		1b 2010: 2.31 2020: 9.2	\$4
		1c 2010: 4.19 2020: 16.4	\$6
ES-2	Public Benefit Charge Funds	2010: 1.46 2020: 4.1	\$280
ES-3	Direct Renewable Energy Support (including Tax Credits and Incentives, R&D, and siting/zoning)	(via RCI-7) 2010: 0.1 2020: 2.1	(via RCI-7) \$31

# DRAFT ES OPTIONS - TABLE 3

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost Effectiveness (\$/tCO <sub>2</sub> e)
<b>EMISSIONS POLICIES</b>			
ES-4	GHG Cap and Trade	(1) 2010: -0.28	\$7
		2020: 4.4	
		(2) 2010: 0.17	
		2020: 2.0	
ES-5	Generation Performance Standards	2010: 5.63	\$29
		2020: 10.2	
ES-6	Carbon Intensity Targets	2010: 0.0	\$44
		2020: 14.0	
ES-7	Voluntary Utility CO <sub>2</sub> Targets and/or Trading	2010: 0.0	\$29
ES-8	CO <sub>2</sub> Tax	2010: 0.53	\$3
		2020: 2.4	

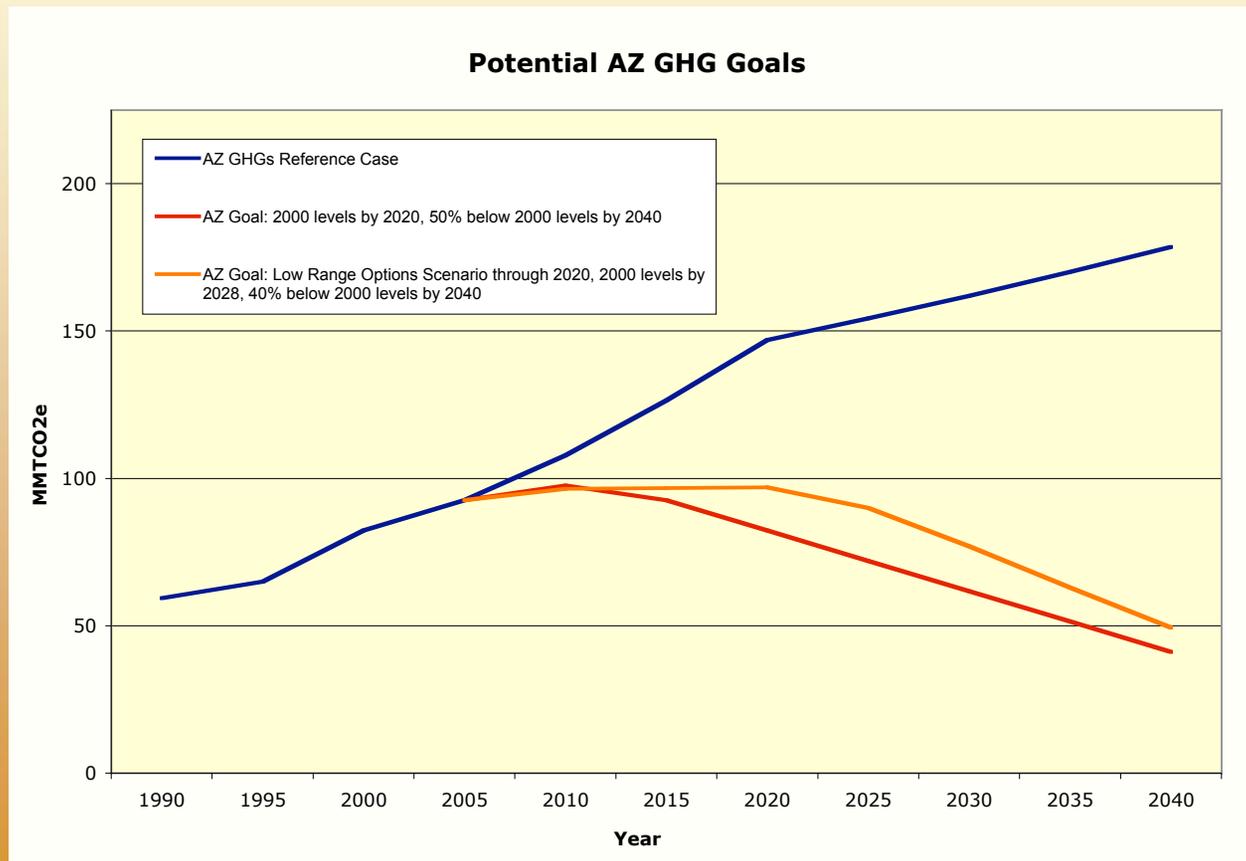
# DRAFT ES OPTIONS - TABLE 3

#	Policy Name	GHG Savings (MMtCO <sub>2</sub> e)	Cost Effectiveness (\$/tCO <sub>2</sub> e)
<b>RENEWABLE AND LOW-EMITTING ENERGY GRID AND UTILITY POLICIES</b>			
ES-9	Reduce Barriers to Renewables and Clean DG	(via RCI-6) 2010: 0.4 2020: 2.7	(via RCI-6) -\$25
ES-10	Metering Strategies		
ES-11	Pricing Strategies	(via RCI-8)	(via RCI-8)
ES-12	Integrated Resource Planning	2010: 0.06 2020: 5.4	-\$2

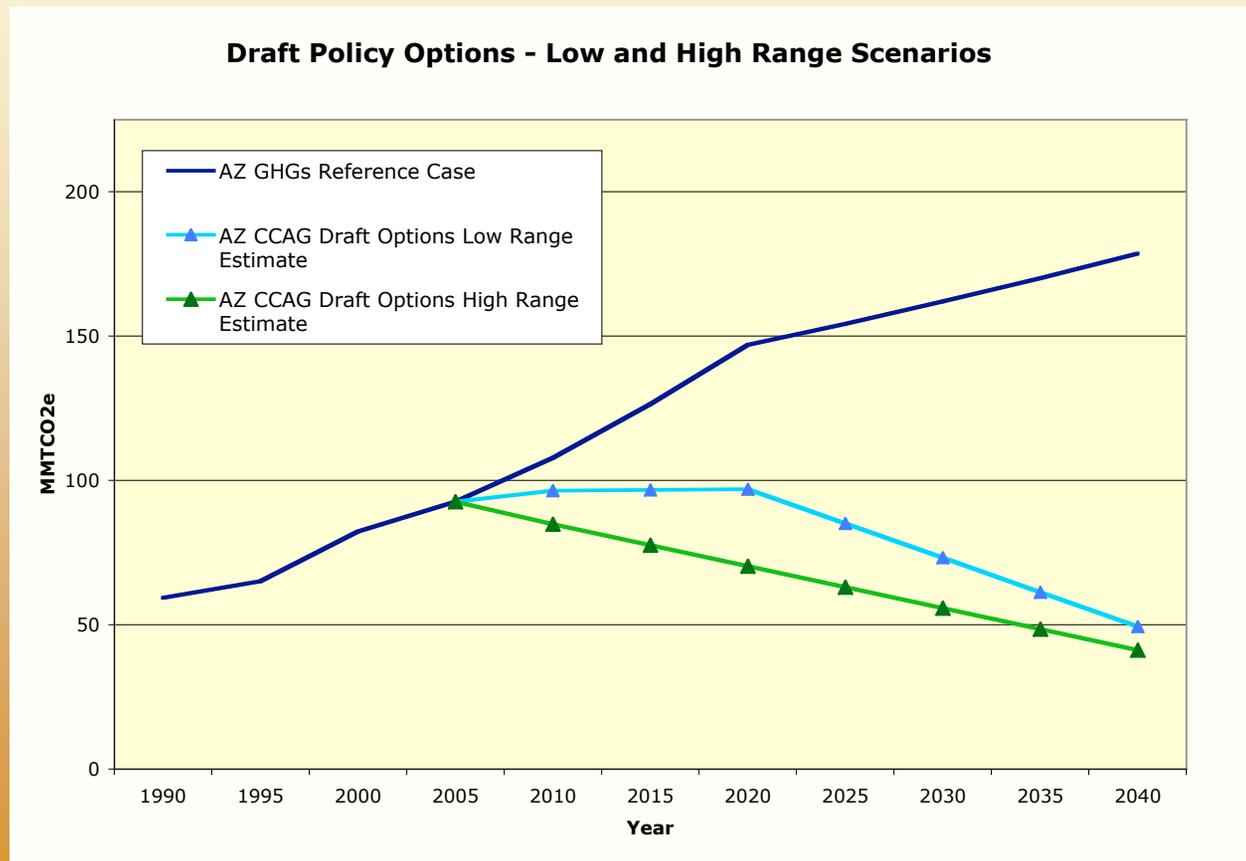
# CROSS CUTTING OPTIONS - TABLE 11

#	Policy Name
<b>CROSS CUTTING ISSUES</b>	
CC-1	State Greenhouse Gas Goals
CC-2	State Greenhouse Gas Reporting
CC-3	State Greenhouse Gas Registry
CC-4	State Climate Action Education
CC-5	State Climate Change Adaptation Strategy

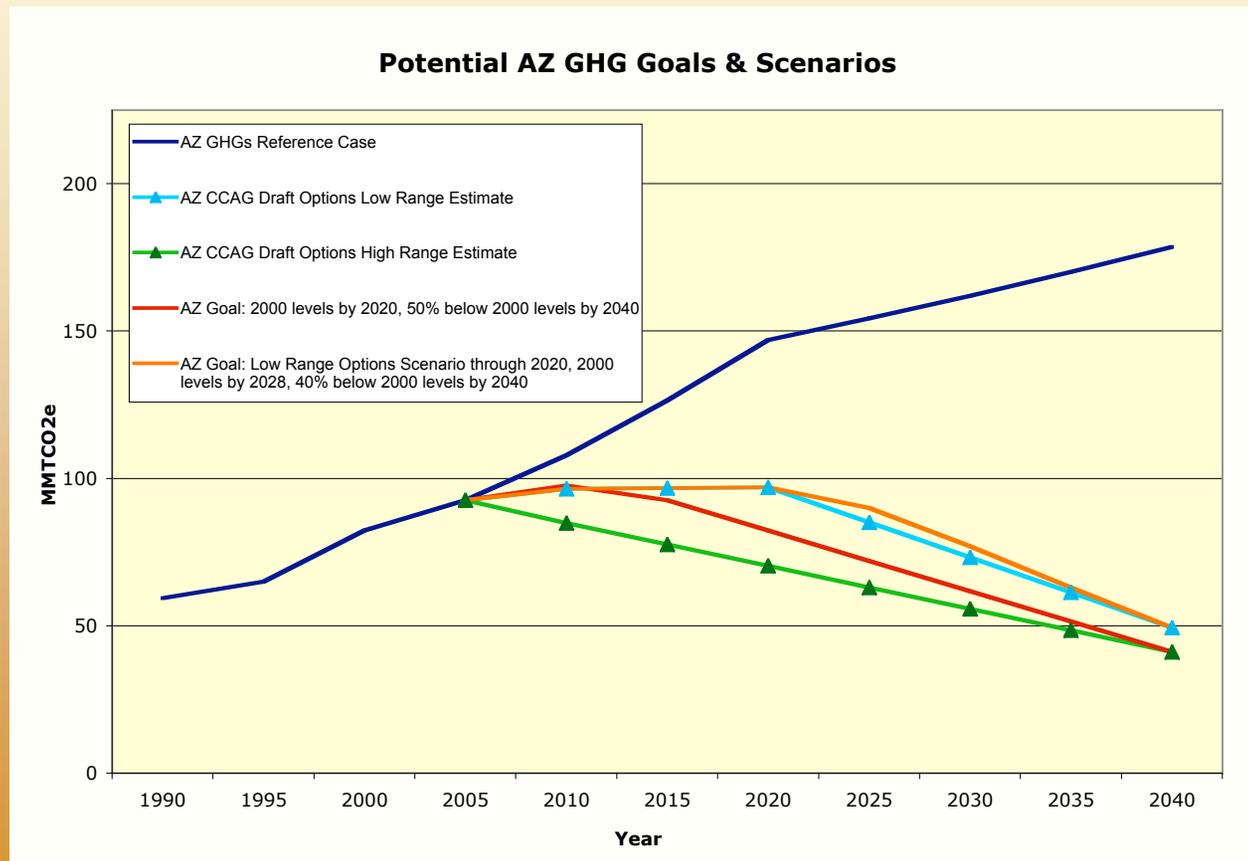
# ALTERNATIVE PROPOSED STATE GHG GOALS



# DRAFT POLICY OPTIONS LOW & HIGH SCENARIOS



# ALTERNATIVE STATE GHG GOALS, LOW & HIGH



# **KEY DRIVERS - POST 2020 GHG REDUCTIONS**

- **ACCELERATED PENETRATION OF EXISTING GHG TECHNOLOGY AND BEST PRACTICES**
  - NEW GROWTH KEY IN ARIZONA -- SENSITIVE TO “LOCK INS” VIA LONG TERM CAPITAL INVESTMENT
  - FOCUS ON STATIONARY AND MOBILE SOURCE EFFICIENCY AND RENEWABLES, FOREST LANDS
- **FULL DEVELOPMENT AND DEPLOYMENT OF ADVANCED TECHNOLOGIES AND SYSTEMS**
  - CARBON STORAGE, HYDROGEN FUELS, ADVANCED RENEWABLES, ADVANCED INDUSTRIAL PROCESS...

# BREAK



# CONTINUATION OF VOTING

- **REMAINING OPTIONS**
  - RCI
  - AF
  - TLU
  - ES
  - CC

# NEXT STEPS

- **TWGs:**
  - **FINALIZE TEXT AND ANALYSIS FOR APPROVED POLICY OPTIONS**
  - **DEVELOP ALTERNATIVE APPROACHES AND ANALYSES AS NEEDED FOR REMAINING DRAFT POLICY OPTIONS**

# DRAFT CCAG REPORT

- **SUMMARY**
  - **BACKGROUND, PURPOSE AND GOALS**
    - EXECUTIVE ORDER
    - DESCRIPTION OF THE PROCESS
    - KEY FINDINGS OF THE STATE EMISSIONS INVENTORY & FORECAST
    - KEY ISSUES FROM CCAG POLICY DISCUSSIONS
  - **POLICY RECOMMENDATIONS & RESULTS**
    - AGRICULTURE AND FORESTRY
    - ENERGY SUPPLY
    - RESIDENTIAL, COMMERCIAL, INDUSTRIAL
    - TRANSPORTATION & LAND USE
    - WASTE MANAGEMENT
    - CROSS CUTTING ISSUES
- **REPORT & APPENDICES**

# **PUBLIC INPUT, ANNOUNCEMENTS**

# AGENDA NEXT MEETING

- **POLICY OPTIONS**
  - REVIEW OF CUMULATIVE RESULTS OF DRAFT POLICY OPTIONS, APPROVED AND PENDING
  - APPROVAL OF REMAINING DRAFT POLICY OPTIONS
- **STATE GHG GOALS**
- **FINAL REPORT DISCUSSION**

# DATE NEXT CCAG MEETING

- **JUNE 22, 2006**
- **9:30 AM - 4 PM**
- **PHOENIX**